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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/669,321

09/25/2003

Hiroshi Nagasaka

ISHP:043

4143

6160

7590

02/18/2005

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EXAMINER

MULPURI, SAVITRI

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/669,321	Applicant(s) NAGASAKA ET AL.	
	Examiner Savitri Mulpuri	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/25/2003, 12/7/200</u> | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-5, drawn to product, classified in class 257, subclass 417.
- II. Claims 6-7, drawn to method, classified in class 438, subclass 50.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be processed by materially different process such as doping of boron impurities at high concentration during the formation of silicon layer to obtain low specific resistance as alternative to annealing process. .

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Wendel on 2/3/2005 a provisional election was made without traverse to prosecute the invention of I, claims 1-5.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 6-7 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno Naohito (02-215166) in combination with Shioiri Hisatoku (US 61-070716).

Mizuno et al teaches a strain gauge for detecting strain comprising: A metal substrate "1" with metal layer "11" of Cr-Ni-Cu of strain generating part to which strain is to be applied, an electrical insulating layer formed on strain generating part; an electrical

Art Unit: 2812

insulating layer "31,32"; sensing elements formed on the electrical insulating layer, each of sensing elements being made of silicon "4" (see fig. Abstract and fig. 2)

With respect to claims 2, 4 and 5, in Mizuno et al, it is not clear whether silicon is subjected annealing, at a temperature in the range of 540 C-590 C, to reduce specific resistance of the boron doped silicon.

Shioiri teaches using boron doped polycrystalline silicon, which is subjected annealing at 500-600 C to obtain specific resistance of in the order of 10^{-2} ohm-cm for strain gauge. (see abstract, page 3, right column, first paragraph). It would have been obvious to one of ordinary skill in the art to obtain specific resistance in the order of 10^{-2} ohm-cm to form sensor with improved mobility and concentration and excellent temperature characteristics (see abstract).

None of the references teach polycrystalline interfacing layer between polycrystalline layer and electrical insulating layer. However, it is well known to provide polycrystalline interface layer "33" between electrical insulating layer "31" and polycrystalline layer "32"(see fig. 8 in the admitted prior art). It would have been obvious to use polycrystalline interfacial layer in strain gauge for the benefit of measuring strain at high temperature such as at least 100 C (see instant specification (para 0010)).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno Naohito (02-215166) in combination with Shioiri Hisatoku (US 61-070716).as applied to claims 1-3,5 above, and further in view of Ishikawa et al (US 2003/0102058).

Art Unit: 2812

With respect to claim 3, though Mizuno et al teaches Cu-Ni-Cr as strain generating substrate "1,11", Mizuno et al do not teach martinsite precipitation hardened stainless steel of, which comprises from 3 to 5 wt.% Ni, from 15-17.5 wt. % Cr and from 3 to 5 wt.% of Cu.

Ishikawa et al teaches stainless steel in strain-induced martensitic phase, comprises which comprises from 3 to 5 wt.% Ni, from 15-17.5 wt. % Cr and from 3 to 5 wt.% of Cu. (see para 0049-0053). It would have been obvious to one of ordinary skill in the art to use stainless steel induced martensitic phase, comprises which comprises from 3 to 5 wt.% Ni, from 15-17.5 wt. % Cr and from 3 to 5 wt.% of Cu is soft stainless steel with excellent workability and no cracking.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art teaches strain gauge structures and prior art also teaches stainless steel in martensitic phase.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 571-272-1677. The examiner can normally be reached on Monday to Friday 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2812

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Savitri Mulpuri
Primary Examiner
Art Unit 2812